

## CLIMATOLOGICAL DATA FOR OCTOBER, 1911.

## DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

October as a rule was dry and cool. On account of the coolness more than the usual amount of snow fell in the mountains. In the usually humid portions of Oregon and Washington the last half of the month was very dry, with an abundance of sunshine. The most severe storm occurred on the 8th, at which time the 4-masted schooner *William Nottingham*, bound from Astoria, Oreg., to Callao, Peru, with over 1,000,000 feet of lumber on board, became waterlogged off the Oregon coast. She was dismasted by high winds and heavy seas on the following day and was in great peril when she was picked up by a passing steamer and towed into Astoria on October 15, without the loss of any lives. In southwestern Montana a heavy snowstorm on the 10th and 11th interfered with railway traffic, and with telegraph and telephone service. At Butte, Mont., there was a fall of more than  $2\frac{1}{2}$  feet of snow and the street-car service in that city was seriously interrupted for a day or two. The low stages of the rivers made it impossible during the entire month for steamboats to make regular trips on the Snake and Upper Willamette Rivers. The soil was too dry for plowing and this work dragged along slowly. Frosts did no damage as the staple crops had been harvested before they occurred, and on the whole the month was considered a favorable one for most of the important industries in this district.

## TEMPERATURE.

The month, taken as a whole, was cooler than usual in this district, although by no means the coolest October on record. Mean temperatures were generally below normal, except in western Washington and extreme northwestern Oregon, where at a majority of stations the mean temperatures were above normal. The greatest departures below normal temperatures were in Idaho, southwestern Montana, northwestern Wyoming, and at a few stations in central and southwestern Oregon, where deficiencies of  $3^{\circ}$  to  $5^{\circ}$  occurred. The greatest departure reported was  $-6.4^{\circ}$  at Anaconda, Deer Lodge County, Mont. The warmest weather occurred quite uniformly from the 7th to the 9th, and although there were several cool periods, the last half of the month averaged the coldest, the minimum temperatures were generally recorded from the 26th to the 29th, inclusive. During the last half of the month, also, killing frosts were reported from the majority of stations east of the Cascade Mountains, and freezing temperatures occurred at several stations west of the Cascades.

The mean temperature for the month, as determined from the records of 251 stations, was  $48^{\circ}$ , which is  $1.4^{\circ}$  below the district normal for October. The mean temperatures ranged between  $55.2^{\circ}$  at Mottinger, Wash., and  $34.8^{\circ}$  at Ovando, Mont. The highest temperature recorded was  $99^{\circ}$  at Mottinger, Wash., on the 7th, and the lowest was  $4^{\circ}$ , at Fortine, Mont. The greatest daily range was  $60^{\circ}$ , at Glenns Ferry, Idaho, on the 8th, and at Riverside, Oreg., on the 15th.

## PRECIPITATION.

There was less than the usual amount of precipitation for October, except in southeastern Oregon, southern Idaho, and southwestern Montana, where it was above normal. The greatest monthly amounts occurred west of the Cascade Mountains in Oregon and Washington, in the Blue Mountains in northeastern Oregon, in southwestern Montana, and in central and southeastern Idaho. The most of the precipitation occurred from the 1st to 3d, 8th to 14th, and 23d to 25th; very little precipitation occurred during the last half of the month. During the second storm period, principally from the 9th to 11th, considerable snow fell on the mountains in the eastern part of the district, and some of it remained on the ground at the close of the month.

The average precipitation, as determined from the records of 354 stations, was 1.34 inches, which shows an average deficiency of 1.11 inches. The greatest monthly amount recorded was 5.55 inches, at Pompeii, on the summit of the Cascade Mountains in northern Oregon, and the least amount was a trace at Plains, Mont., and Odessa, and White Salmon, Wash. The greatest 24-hour precipitation was 2.56 inches, at Headworks, Oreg., on the 1st. The greatest monthly amount of snowfall was 32.5 inches, at Butte, Mont.

## THE RIVERS.

The Willamette and Snake Rivers averaged the normal stage during October, but the Columbia was nearly a foot below normal, records from eight stations being considered. In western Oregon all the streams were influenced by the rains which fell during the first four days of the month, and in consequence the maximum stages occurred generally on the 5th, or in some cases a few days later. The Columbia, however, showed an uninterrupted fall from the 1st of the month to the 31st. The Snake River was at its lowest stage on the 1st of October and reached a maximum during the third week in the month. The upper Willamette and Snake Rivers were higher this month than in the preceding month, but with these exceptions all streams were lower than in September.

The mean stage of water at The Dalles on the Columbia River was 2.7 feet, which is 2.1 feet below the normal. At Cascade Locks the mean stage was 1.8 feet, or 1.4 feet below the normal. At The Dalles the stage ranged from a maximum of 4.1 feet on the 2d to 1.6 feet on the 30th and 31st. At Cascade Locks the water fell from a maximum stage of 2.9 feet on the 1st to 0.8 foot on the 31st.

The highest water at Oregon City on the Willamette River was 4.9 feet above the lowest lock sill on the 6th, and the lowest stage was 2.6 feet on the 29th and 30th. The maximum stage at Portland was 4.7 feet on the 9th and the lowest 0.7 foot on the 31st.

## MISCELLANEOUS.

Freezing temperatures occurred at most of the stations in the district and a large number of places experienced killing frosts in consequence of these and lower temperatures. Not many thunderstorms were observed outside of Idaho, and in that State they were general only on the 1st, being reported from 11 stations. Observers in Oregon exhibited great uniformity in reporting high winds on the 8th day of the month, and instruments at regular Weather Bureau stations showed the following velocities on that date: North Head, Wash., 74 miles from the southeast; Baker, Oreg., 26 miles from the southeast; Walla Walla, Wash., 29 miles from the southeast; and Portland, Oreg., 23 miles from the south. Other high wind velocities reported from Weather Bureau stations were as follows: Tatoosh Island, Wash., 49 miles from the southwest, on the 13th; Seattle, Wash., 32 miles from the south, on the 9th; Lewiston, Idaho, 36 miles from the west, on the 2d; and Pocatella, Idaho, 36 miles from the southwest, on the 9th. The prevailing direction of the wind was from the west. There was a large proportion of clear days and more than the average amount of sunshine.

## MISCELLANEOUS PHENOMENA.

Cooperative Observer Dr. J. Campbell-Martin, of Dayville, Oreg., reports having seen at 8 a. m. on October 8, 1911, a brilliant meteor, the sky at the time being cloudless, and Mr. Arthur Begg, of John Day, reports having seen, under the same conditions, one at 9 a. m. of the same day. Both state the meteors were brighter than the sun.

Dr. Campbell-Martin says:

This meteor crawled, not shot, across from the eastern to the western horizon, apparently but a short distance above the high ridges, and was headed almost due west. The nucleus was a bright yellow but the semitransparent tail, which was of enormous length, was steel gray and emitted myriads of stars.

Mr. Begg says:

I saw a very bright ball of fire, or rather it looked like a dazzling electric light about the size of a baseball with a tail like a comet about 1 yard long and emitting small sparks. It appeared to be not more than 60 yards away and to travel about 10 or 12 miles an hour. It was traveling in a direction a little north of west and about 30 feet from the earth, and heading toward it.

TABLE 1.—Climatological data for October, 1911. District No. 12, Columbia Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees, Fahrenheit.						Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
<i>Montana.</i>																					
Anaconda.....	Deer Lodge.....	5,300	10	39.4	- 6.4	75	8	11	26†	41	2.43	+ 1.62	5.0	7	22	2	7	n.w.	C. D. Demond.		
Butte.....	Silver Bow.....	5,716	17	39.0	- 5.5	72	8	12	28	36	3.30	+ 2.40	32.5	5	18	6	7	n.w.	J. R. Wharton.		
Columbia Falls.....	Flathead.....	3,100	16	40.9	- 2.4	76	8	8	28	43	0.22	- 1.05	0.20	2	19	5	7	ne.	J. M. Grist.		
Come **.....	Ravalli.....	3	41.8	.....	68	9	20	19	32	1.04	.....	0.73	T.	8	11	10	4	.....	Hiram Platt.		
East Anaconda.....	Deer Lodge.....	5,500	6	39.2	.....	76	8	17	26†	34	2.77	.....	1.80	6.2	7	22	2	w.	C. D. Demond.		
Fortine.....	Lincoln.....	2,975	6	39.2	.....	74	7†	4	28	55	0.34	.....	0.22	T.	4	6	9	w.	Mike Petery.		
Hamilton.....	Ravalli.....	3,575	8	42.6	.....	70	9	16	28†	34	1.99	+ 1.13	1.19	0	3	16	5	e.	Bitter Root Valley Irrig. Co.		
Hat Creek.....	Powell.....	6,000	2	.....	.....	.....	.....	.....	.....	2.45	.....	1.00	18.3	11	13	8	10	w.	M. K. Landreth.		
Kalispell.....	Flathead.....	2,965	13	42.2	- 0.3	70	9	18	28	35	0.84	- 0.33	0.78	T.	3	16	6	9	w.	U. S. Weather Bureau.	
Libby.....	Lincoln.....	2,055	41.9	.....	73	8	10	28†	43	0.09	.....	0.09	0	1	10	19	2	.....	U. S. Forest Service.		
Lost Creek.....	Deer Lodge.....	5,200	2	.....	.....	.....	.....	.....	.....	2.82	.....	1.46	4.0	7	20	5	6	w.	Frank Henault.		
Missoula.....	Missoula.....	3,225	32	43.2	- 1.7	79	8	14	28	48	2.32	+ 1.17	1.47	0	5	.....	.....	sw.	U. S. Weather Bureau.		
Ophir.....	Powell.....	6,800	2	.....	.....	.....	.....	.....	.....	3.09	.....	1.00	16.0	9	16	9	6	w.	E. S. Wilton.		
Osvaldo.....	do.....	4,207	12	34.8	.....	58	1	7†	27†	38†	2.76	+ 1.60	1.85	2.5	6	.....	.....	sw.	S. B. Muchmore.		
Philipsburg.....	Granite.....	5,275	8	41.34	.....	83d	8	10d	28	54d	3.57	.....	1.70	9.0	9	19d	3d	sw.	G. T. Bramble.		
Plains.....	Sanders.....	2,475	13	44.1	- 2.3	72	9	19	27†	35	T.	- 0.75	0	0	26	0	.....	M. H. Pierce.			
Pleasant Valley.....	Flathead.....	3,500	4	38.2	.....	73	8	6	27	50	0.30	.....	0.30	T.	1	20	10	1	e.	A. D. Stillman.	
Polson.....	do.....	2,920	4	45.6	.....	69	8	24	27	34	1.66	.....	0.72	0	6	.....	.....	sw.	F. P. Brown.		
Proctor.....	do.....	2,800	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	C. E. Proctor.		
St. Ignatius.....	Missoula.....	2,700	6	42.2	.....	69	16	15*	28	35*	2.32	.....	1.27	0	7	12	12	7	w.	U. S. Reclamation Service.	
St. Regis.....	do.....	2,650	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.72	0	3	24	0	7	w.	R. D. Lee.	
Saltse.....	do.....	3,600	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	E. K. Tarbox.		
Steptoeville.....	Ravalli.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	J. S. Birge.	
Thompson Falls.....	Sanders.....	2,462	44.3	.....	75	8	18	29†	42	0.48	.....	0.13	0	7	15	5	11	w.	R. H. Bushnell.		
Willow Glen Stock F'm.....	Deer Lodge.....	5,064	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	G. E. Luce.	
<i>Wyoming.</i>																					
Afton.....	Uinta.....	6,200	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. V. Call.		
Alta.....	do.....	7,000	1	36.1	.....	70	8	6	19	46*	2.08	- 0.93	0.48	14.0	6	15	6	10	sw.	Mrs. Lucy Brown.	
Bedford.....	do.....	5,900	11	37.9*	- 3.6	71	8	10	29	46*	0.51	- 0.93	0.36	2.1*	2	21*	2*	3*	w.	C. G. Heiner.	
Bechler River.....	Yellowstone Park.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.94	.....	1.70	27.6	5	22	2	7	n.w.	U. S. Army.	
Moran.....	Uinta.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.43	13.5	7	15	9	7	s.	U. S. Army.	
Snake River.....	Yellowstone Park.....	7,000	5	34.6	.....	70	8	8	29	47	1.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	
<i>Nevada.</i>																					
San Jacinto.....	Elko.....	.....	6	43.3	.....	72	24†	8	29	58	1.30	.....	.....	T.	4	19	1	11	n.w.	Moses Jones.	
<i>Utah.</i>																					
Standrod.....	Boxelder.....	.....	6	41.5	.....	68	8†	14	19	38	1.99	.....	1.01	2.7	3	23	3	5	sw.	T. B. Jones.	
<i>Idaho.</i>																					
Albion.....	Cassia.....	4,650	10	42.8	- 5.0	75	8	15	28†	47	3.13	+ 1.65	1.12	.....	6	21	6	4	w.	G. A. Axline.	
Almo.....	do.....	3	.....	.....	.....	.....	.....	.....	.....	1.15	0.38	.....	5	21	8	2	.....	.....	Wm. D. Cahoon.		
Alpha.....	Boise.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	w.	J. W. King.	
American Falls.....	Oneida.....	4,341	19	40.8	- 5.7	75	9	10	18	55	3.00	+ 1.95	1.20	0	5	26	0	5	sw.	Geo. Stoll.	
Blackfoot.....	Bingham.....	4,503	15	42.4	- 3.4	75	8†	14	28	44	1.73	+ 0.65	0.67	2.0	5	19	7	5	sw.	E. A. Dowd.	
Blackfoot Dam.....	Bannock.....	6,200	2	43.2	.....	69	18	22	29	36	1.15	.....	0.35	6.5	7	21	3	7	sw.	N. W. Irfield.	
Bogus Creek.....	Boise.....	4,200	3	.....	.....	.....	.....	.....	.....	3.33	.....	1.67	0.5	20	8	8	3	sw.	F. P. Ingraham.		
Boise.....	Ada.....	2,739	28	49.0	- 1.3	82	8	28	20	38	2.45	+ 1.17	1.39	0	6	19	4	8	n.w.	U. S. Weather Bureau.	
Bonner Ferry.....	Bonner.....	1,850	4	.....	.....	.....	.....	.....	.....	2.58	.....	0.89	4.9	6	23	2	6	.....	W. H. Heideman.		
Boulder Mine.....	Boise.....	4,800	4	.....	.....	.....	.....	.....	.....	2.58	.....	0.63	0	4	19	5	2	.....	Patrick Moriarty.		
Buhl.....	Twin Falls.....	3,800	5	48.04	.....	75d	7	21d	21	41	1.50	.....	1.50	0	4	16	10	5	w.	Hugh Taylor.	
Caldwell.....	Canyon.....	2,372	7	47.5	.....	84	8	18	29	45	1.09	.....	0.40	0	5	16	10	5	w.	Wm. J. Boone.	
Camas.....	Fremont.....	4,815	3	40.6*	.....	77°	4	10°	28	55°	1.98	.....	1.80	.....	3	.....	.....	.....	sw.	Mrs. Edna Faulkner.	
Cambridge.....	Washington.....	2,651	16	.....	.....	.....	.....	.....	.....	1.28	.....	1.02	0	2	19	8	4	n.w.	C. H. Shepherd.		
Cedar Creek Dam.....	Twin Falls.....	2	.....	.....	.....	.....	.....	.....	.....	1.28	.....	1.02	0	2	19	8	4	n.w.	Robt. Hoffman.		
Chesterfield.....	Bannock.....	5,424	16	.....	.....	.....	.....	.....	5	30	.....	1.85	+ 0.90	0.43	T.	6	15	10	6	n.w.	Chas. S. West.
Clyde.....	Custer.....	4,000	2	.....	.....	.....	.....	.....	.....	1.28	.....	1.02	0	2	19	8	4	.....	.....		
Cottonwood Creek.....	Boise.....	4,000	2	.....	.....	.....	.....	.....	.....	1.28	.....	1.02	0	2	19	8	4	.....	Frank Hedrick.		
Council.....	Adams.....	4,520	3	48.4	.....	73	12	21	26†	43	2.02	.....	0.96	0	3	15	9	7	.....	Dick Ross.	
Culdesac.....	Nez Perce.....	1,520	3	48.4	.....	.....	.....	.....	.....	1.28	.....	0.96	0	3	15	9	7	.....	R. R. Richmond.		
Deary.....	Latah.....	2	.....	.....	.....	.....	.....	.....	.....	1.28	.....	0.96	0	3	15	9	7	.....	H. P. Henry.		
Dent.....	Clearwater.....	1,350	6	48.5	.....	80	7	18	27†	47	1.08	.....	0.83	0	5	18	10	3	.....	E. Schutessier.	
Driggs.....	Fremont.....	6,097	5	36.0	.....	69	8	8	20	41	1.48	.....	0.55	9.5	5	15	6	10	n.	W. H. Durrant.	
Emmett.....	Canyon.....	2,350	5	46.8	.....	85	8	20	17†	51	0.95	.....	0.67	0	5	16	7	sw.	C. P. Kar.		
Forney.....	Lemhi.....	14	39.7	- 2.9	78	9	9	27	51	0.68	- 0.41	0.53	0	2	14	8	9	.....	M. B. Merritt.		
Garden Valley.....	Boise.....	3,600	4	.....	.....	.....	.....	.....	.....	1.15	.....	0.43	0	5	17	6	8	.....	Mrs. Gertrude M. Ross.		
Garnet.....	Elmore.....	2,575	12	52.2	.....	88	8	23	28†	45	0.55	- 0.20	0.55	0	1	22	3	6	w.	A. A. Kenison.	
Glenns Ferry.....	do.....	2,569	4	47.6	.....	88	8	11	27	60	0.69	.....	0.30	0	5	23	1	7	.....	I. E. Perkins.	
Gooding.....	Lincoln.....	3,572	2	46.2	.....	81	8	16	28	46	1.10	.....	0.42	0	4	22	3	6	w.		

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.					
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<i>Idaho—Continued.</i>																					
Moscow.	Latah.	2,748	20	47.0	- 2.0	80	8	20	27†	43	1.01	- 0.61	0.46	0	3	19	6	6	se.	University of Idaho.	
Mountainhome.	Elmore.	3,150	6																	Mrs. Ellen Manion.	
Murtaugh.	Twin Falls.	5	43.9*			76	8	15	29	44	1.95		1.00		4					w.	J. E. Steinour.
Nez Perce.	Lewis.	3,082	2	44.4		78	8	19	28	40	2.44		0.92	0	5	22	3	6		P. Mitchell.	
Oakley.	Cassia.	13	47.6	- 2.0	79	7	21	19†	45	1.20	+ 0.36	0.35	0	4	16	11	4		John Adams.		
O'Hara Bar.	Idaho.	1,400	2	43.9		68	7	20	29	33	2.87		0.97		7	9	13	9	ne.	J. D. Agnew.	
Orofino.	Clearwater.	1,027	8	47.2		80	8	18	28	45	1.72		0.56	0	5	14	15	2		Geo. Alteneder.	
Payette.	Canyon.	2,159	20	47.8	- 3.5	84	8	19	29	47	1.04	+ 0.20	0.37	0	5	20	2	9	n.	E. F. Allen.	
Peaceful Valley.	do.	3,325	1																j. W. Newton.		
Pebble.	Bannock.	5,277	2	40.0		70	7†	9	29	46	2.96		1.57	10.0	7	21	5	5	sw.	Mrs. Fannie Say.	
Pierson.	Custer.	7,000	3	42.7		71	10	17	30	46	2.05		0.72	10.0	4	25	6	6	s.	D. P. Clarke.	
Pleasant Valley.	Ada.	3,000	4	47.0		84	8	19	20	45	1.17		0.57	0	5	22	1	8	nw.	C. E. Friedrich.	
Pocatello.	Bannock.	4,483	12	44.8	- 3.2	73	9	20	19	37	1.74	+ 0.76	0.72	0.2	5	18	8	5	sw.	U. S. Weather Bureau.	
Poplar.	do.	5,396	3	41.0		70	9	10	19	51	2.36		0.98		4	23	2	6	s.	P. T. Wrensted.	
Porthill.	Bonneville.	3	38.8			72	9	10	20	45					6	13	15	3		C. M. Lawrence.	
Pyle Creek.	Bonner.	1,665	20	42.5	- 2.8	66	8	18	28†	33	1.40		0.40	0	5	23	2	6	s.	H. A. French.	
Richfield.	Lincoln.	3,100	2	45.6		79	8	17	30	43	0.68		0.61	0	4	23	5	3	sw.	P. V. Smith.	
Roseberry.	Boise.	1																	Rev. H. F. Barstow.		
Roseworth.	Twin Falls.	2																	D. B. Hartwell.		
Rupert.	Lincoln.	4,204	5	44.7		77	8	16	30	43	0.79		0.64	0	3	8	15	8	nw.	Will Parry.	
St. Maries.	Kootenai.	2,263	15	44.2	- 4.6	78	8	18	28	44	1.68		0.74	0	6	23	3	5	sw.	J. S. Turnbull.	
Salmon.	Lemhi.	4,040	6	41.2		75	9	15	27	42	1.01	- 1.19	0.53	0	5	9	6	16	s.	B. C. d'Easum.	
Salmon River Dam.	Twin Falls.	3	45.8*			70*	8	20	19	42	1.30		5.8	T.	4	24	2	5	nw.	P. W. Farrar.	
Sandpoint.	Bonner.	2,086	1	42.8		71	7	11	29	44	0.86		0.28		0	2	14	5	12	s.	J. H. Edgerton.
Sheep Hill.	Boise.	5,000	3								1.00		0.38	0	5					C. M. Gardner.	
Shoshone.	Lincoln.	3,968	3	45.0		77	8	19	28	42	0.63		0	5	18	11	2	2	w.	Zeel Truman.	
Silver City.	Owyhee.	6,280	4								0.93		0.48	10.0	4	21	6	4	sw.	A. D. Bradfield.	
Soldier Creek.	Blaine.	1	42.0			70	7†	15	19	39	0.75		0.40	T.	4	21	5	5	nw.	J. E. Minear.	
Spirit Lake.	Kootenai.	1	45.4			83	8	12	29	54	0.71		0.45	0	5	22	1	8	ne.	M. C. Krause.	
Springfield.	Bingham.	4,420	3	44.1		74	9	20	29	44	2.26		0.78	0.5	6	12	9	10		Mrs. W. A. Edwards.	
Sugar.	Fremont.	4	39.2			72	8†	13	28	40	2.45		0.90	2.0	0	6	21	4	6	sw.	Utah-Idaho Sugar Co.
Sunnyside.	Elmore.	2	45.9			83	8	19	29	51	0.82		0.34	0	5				nw.	E. A. Wilmet.	
Tripod Mountain.	Boise.	4,300	2								2.12		0.98	3.5	5	23	2	6		Mrs. Verna Paddock.	
Twin Falls.	Twin Falls.	3,825	6	44.9		77	7	14	29	50	1.46		0.75	0	5	17	8	6	w.	J. A. Waters.	
Vernon.	Fremont.	14	41.2	- 2.8	79	7	15	28	53	3.74	+ 2.55	1.21	7.0	5	20	7	4	sw.	A. M. Slattery.		
Wallace.	Shoshone.	2,728	4	43.4		78	8	21	29	38	0.90		0.53	0	5				s.	U. S. Weather Bureau.	
Weiser.	Washington.	2,114																	Jos. B. Estabrook.		
Wendell.	Lincoln.	3,400	3	47.8		83	8	18	29	51	1.31		0.50		4	23	5	3	w.	C. L. Dingler.	
<i>Washington.</i>																					
Aberdeen.	Chehalis.	162	20	51.6	- 0.8	70	7	31	27	32	4.09	- 2.62	1.24	0	12	4	23	4	w.	C. S. Weatherwax.	
Anacortes.	Skagit.	60	17	49.6		67	4	32	26†	25	0.49	- 1.99	0.16	0	6	12	16	3		Douglas Allmond.	
Baker.	do.	200	5	52.8		80	7	30	28†	37	1.20		0.40	0	5	16	5	10		Robt. M. White.	
Bellingham.	Whatcom.	60	16	51.3	+ 0.4	76	7	29	28	40	1.02	- 1.42	0.40	0	5	22	4	5		S. B. Mayhew.	
Bellingham, near.	do.	107		48.3		64	7†	26	28	32	1.08		0.34	0	11	14	10	7		U. S. Bur. of Plant Industry.	
Beverly.	Grant.	545																			
Blaine.	Whatcom.	57	14	48.5	+ 0.6	72	7	27	28†	30	1.49	- 1.87	0.32	0	12	9	15	7	ne.	John W. Sheets.	
Blewett.	Chelan.	2,200	1																		
Bremerton.	Kitsap.	30																			
Bumping Lake.	Okanogan.	1,620	1	49.6		80	8	25	28	34	0.20		0.09	0	3	24	4	3	nw.	U. S. Navy Yard.	
Cedar River.	Yakima.	3,400	43.0			73	7	19	27	42	0.08		0.04	0	3	21	2	8		Mrs. H. F. Bertram.	
Conconully.	King.	535	4			78	8	20	29	38	1.79		0.67	0	6	15	3	13		U. S. Reclamation Service.	
Cowiche.	Lewis.	212	18	51.1	- 1.0	78	7	29	20†	41	1.26	- 2.20	0.21	0	9	12	9	10	n.	Geo. Landsburg.	
Crescent.	Spokane.	2,351	12																I. S. Turner.		
Davenport.	Kittitas.	1,930	12	44.4	- 2.7	75	8	12	29	46	0.17	- 1.71	0.11	0	2	20	5	6	sw.	J. A. Balmer.	
East Sound.	Whatcom.	140	8	48.9		69	8	23	25†	39	1.18		0.30	0	9	7	15	9	ne.	George Gibbs.	
Ellensburg.	Whitman.	2,300	22	49.5	- 0.1	90	8	12	28	53	0.63	- 1.49	0.33	0	2					I. B. Doolittle.	
Ephrata.	Stevens.	1,635	11	43.8	- 1.4	82	8	14	28	51	0.36	- 0.82	0.15	0	4	21	6	4	sw.	W. L. Sax.	
Forks.	Okanogan.	2,300	11	47.2		78	8	20	29	38	0.15	- 0.90	0.16	0	1	21	3	7		Wm. Baines.	
Fort Simcoe.	Yakima.	1,874	46.6			77	8	29	17	33	0.17		0.14	0	3	19	10	2	sw.	U. S. Reclamation Service.	
Gerome.	Mason.	2,250	11	45.2	- 1.9	82	9	15	28†	42	0.21	- 1.14	0.10	0	3	21	4	6		Mrs. Otto Wollweber.	
Goat Lake.	Columbia.	2,450	2	45.8		82	8	17	27†	40	0.06		0.05	0	2	20	1	2	sw.	J. L. Thayer.	
Gold Basin.	Columbia.	1,700	25	50.8	+ 0.7	88	8	22	28	42	0.80	- 1.21	0.44	0	5	16	8	8	sw.	W. W. Hendron.	
Gold Creek.	Spokane.	2,050	3	44.4		85	8	10	29	51	0.25		0.19	0	2	17	6	8	sw.	James Mills.	
Goldendale.	Mason.	30	3	51.4		76	7	31	27	34	2.13		0.77	0	9	13	9	9	sw.	Walter O. Eckert.	
Granite Falls.	Walla Walla.	5,000	2								1.99		0.98	0	10	12	5	14		Valley Power Co.	
Grays River.	Chelan.	960	1								0.26		0.12	0	5	25	3	3		E. G. Newman.	
Hatton.	Adams.	1,100	6	49.2		87	8	14	28	45	0.21		0.11	0	2	12	8	11	sw.	A. V. Marion.	
Huntsville.	Columbia.	1,400	3								0.60		0.55	0	2	21	5	5		Mrs. B. J. Hill.	
Irene Mountain.	Okanogan.	3,015	2								0.05		0.03	0	2	21	5	5		Mrs. Manda Shain.	
Kennewick.	Benton.	368	16	51.8	- 1.8	85	9	17	27†	47	0.18	- 0.39	0.10	0	2	13	8	4		R. E. Reed.	
Kettle Falls.	Stevens.	1,265	2	47.5		85	8	18	28†	52	0.20		0.07	0	4	19	8	4		Harry H. Cole.	
Kiona.	Benton.	430	6								1.23		0	8							
Kosmos.	Lewis.	775	5	50.1		83	7	24	27†	47	1.72		0.66	0	10	9	20	2	ne.	J. A. Ulsh.	
La Center.	Clark.	250	14	48.0	- 3.3	72	7	22	27†	40	1.08	- 3.17	0.47	0	5	14	10	7	sw.	Joseph Brothers.	
La Crosse.	Whitman.	1,400	2	47.4		88	8	9	28	46	0.10		0.10	0	1	22	2	7	e.	M. E. Schreck.	
Lake Clealum.	Kittitas.	2,171	2								0.36		0.09	0	7	13	5	13	sw.	U. S. Reclamation Service.	
Lake Kachess.	do.	2,235	3	41.4		75	9	12	28	48	0.54		0.24	0	6	18	7	6	a.	Do.	
Lake Keechelus.	do.	2,479	3								1.09		0.45	0	8	12	10	9	w.	Do.	
Lakeside.	Chelan.	1,116	20	50.8	- 0.2	76	8	27	28	31	0.18	- 0.64	0.11	0	2	11	18	2	sw.	W	

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
<i>Washington—Contd.</i>																					
Laurier.	Ferry.	1,644	1	45.4	.....	82	8	16	28	47	0.25	.....	0.07	0	5	18	6	7	w.	Mrs. J. S. Myers.	
Lester.	King.	1,614	7	50.1	.....	79	8	28	5†	40	1.29	.....	0.50	0	8	16	5	10	w.	Augustine Smith.	
Lone Tree.	Chehalis.	14	2	.....	.....	64	20†	.....	.....	.....	2.32	.....	0.66	0	11	8	12	11	sw.	U. S. Engineer Corps.	
Longmires Springs.	Pierce.	2,800	2	.....	.....	.....	.....	.....	.....	.....	0.10	.....	0.10	0	1	16	10	5	se.	P. H. Leese.	
Lost Creek.	Okanogan.	3,125	3	.....	.....	.....	.....	.....	.....	.....	0.31	.....	0.19	0	3	22	2	7	n.		
Lucerne.	Chelan.	1,100	4	50.3	.....	84	8	19	28	37	0.90	.....	0.30	0	5	15	14	2	sw.	Paul M. McConihe.	
McConihe.	Grant.	1,072	2	.....	.....	.....	.....	.....	.....	.....	0.28	.....	0.18	0	2	27*	0	3	sw.	Miss Mary McCumber.	
McCumbers Ranch.	Yakima.	2,182	2	.....	.....	.....	.....	.....	.....	.....	0.23	.....	1.39	0	5	23	0	8	e.	C. C. Ward.	
Moses Lake.	Grant.	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.06	.....	0.06	0	3	16	5	10	sw.	G. H. Mottinger.	
Mottinger.	Benton.	307	11	55.2	- 1.2	99	7	26	28	55	0.39	.....	0.30	0	2	27*	0	3	sw.	Wm. M. Darr.	
Mount Pleasant.	Clallam.	500	19	48.2	- 2.1	67	6	35	17†	23	1.57	.....	1.39	0	3	16	7	4	sw.	H. B. Scudder.	
Moxee.	Yakima.	1,000	19	48.0	- 2.1	82	8	17	27†	46	0.07	- 0.45	0.30	0	3	13	10	13	se.	Chas. M. Taimadge.	
Newport.	Stevens.	2,400	1	44.0	.....	78	8	11	28†	45	0.49	.....	0.30	0	3	17	3	6	se.	U. S. Weather Bureau.	
North Head.	Pacific.	211	9	53.6	+ 0.7	71	21	46	29	20	2.32	.....	- 1.59	0	6	26	0	5	sw.	W. F. Case.	
Northport.	Stevens.	1,350	12	45.5	.....	75	8	20	28	37	0.40	.....	- 1.41	0	3	19	8	4	sw.	Albert Bender.	
North Yakima.	Yakima.	1,070	2	49.2	.....	75	8	23	29	36	0.12	.....	0.06	0	3	19	8	4	sw.	Miss Ruth Shepard.	
Nutland.	Klickitat.	2	50.6	.....	72	6†	23	27	37	0.17	.....	0.13	0	2	17	2	2	sw.	Wm. U. Neely.		
Odessa.	Lincoln.	1,540	8	46.4	.....	86	8	12	27†	45	T.	.....	T.	0	0	12	9	5	sw.	Cecil Willis.	
Olga.	San Juan.	50	21	49.2*	+ 2.4	60*	20	38*	28†	17*	0.21	- 3.07	0.35	0	7	12	6	13	sw.	M. O'Connor.	
Olympia.	Thurston.	200	33	51.5	+ 0.7	76	7	29	26	40	1.21	.....	0.04	0	2	21	3	7	n.	St. John Umbrite.	
Omak.	Okanogan.	850	2	49.2	.....	84	8	14	28	47	0.06	.....	0.04	0	2	17	2	2	sw.		
Oroville.	do.	922	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	sw.		
Parker.	Yakima.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	sw.		
Peola.	Garfield.	5,000	2	.....	.....	.....	.....	.....	.....	.....	1.28	.....	0.68	0	6	18	8	5	sw.	Samuel Gruell, sr.	
Pomeroy.	do.	1,500	19	50.7*	- 2.9	88*	8	19*	28	36	0.50	- 0.82	0.25	0	3	9*	11*	3*	sw.	Peter McClung.	
Port Crescent.	Clallam.	259	16	46.4	- 1.0	62	7	30	29	24	1.11	- 2.36	0.45	0	7	3	19	9	s.	U. S. Weather Bureau.	
Port Townsend.	Jefferson.	80	21	50.7	+ 0.2	66	7	37	29	24	0.12	- 1.52	0.05	0	4	14	5	12	nw.	F. Plummer.	
Pullman.	Whitman.	2,550	19	47.2*	- 2.4	80	8	21*	27	33	0.93	- 0.49	0.45	0	4	19	7	5	sw.	Henry Holtz.	
Queteet River.	Chehalis.	.....	.....	50.8	.....	67	7	32	27	29	0.94	.....	1.07	0	17	11	8	12	w.	C. A. Bullard.	
Quinault.	do.	300	4	53.4	.....	79	20	31	27†	44	4.84	.....	1.85	0	12	13	11	7	w.	A. V. Higley.	
Republic.	Perry.	2,628	11	42.8	- 1.1	78	8	12	28	46	0.17	.....	0.07	0	4	18	5	8	w.	Geo. B. Stocking.	
Rex Creek.	Chelan.	1,135	4	.....	.....	.....	.....	.....	.....	.....	0.02	- 0.65	0.01	0	2	.....	.....	.....	sw.	Agt. Northern Pacific Ry.	
Ritzville.	Adams.	1,825	12	.....	.....	.....	.....	.....	.....	.....	0.11	.....	0.10	0	2	21	6	4	sw.	P. M. Ramsey.	
Rock Lake.	Whitman.	1,910	5	46.6	.....	83	8	13	29	41	0.11	.....	0.50	0	5	15	14	2	sw.	R. R. Conger.	
Robertsville.	Klickitat.	44.5	2	.....	.....	73	8	20	28	35	1.28	.....	0.50	0	7	3	9	7	sw.	Hans Munn.	
Rosalia.	Whitman.	2,425	19	47.2	- 0.8	82	8	20	28†	34	0.29	- 1.29	0.17	0	3	20	4	7	sw.	Miss Adelia Russell.	
Russells Ranch.	Yakima.	2,870	2	44.2	.....	73	7	33	27	28	0.53	.....	0.24	0	4	21	8	2	w.	U. S. Weather Bureau.	
Seattle.	King.	123	20	52.5	+ 1.7	74	7	36	27	28	1.00	- 1.88	0.39	0	8	5	10	16	n.	Mrs. H. L. Devins.	
Sedro-Woolley.	Slagit.	38	14	49.4	- 2.2	76	7	28	29	33	1.08	- 3.21	0.28	0	10	13	10	8	sw.	C. E. Comstock.	
Sixprong.	Klickitat.	1,240	4	52.0	.....	85	8	22	28	35	0.59	.....	0.42	0	4	19	5	7	ne.		
Skagit Power Dam.	Whatcom.	510	1	.....	.....	.....	.....	.....	.....	.....	0.20	.....	0.12	0	3	25	5	1	nw.		
Snohomish.	Snohomish.	100	17	52.7	+ 1.3	72	3	26	21	33	0.85	- 2.79	0.60	0	3	10	15	6	nw.	A. M. Richardson.	
Snoqualmie Falls.	King.	667	12	49.0	- 1.7	74	7	29	29	33	1.04	- 3.97	0.28	0	10	16	5	8	sw.	O. N. Wiswald.	
Snyders Ranch.	Okanogan.	2,200	2	44.2	.....	72	7	12	27†	44	0.10	.....	0.10	0	1	20	4	7	sw.	Geo. M. Snyder.	
South Bend.	Pacific.	16	21	52.9	- 1.4	72	21	33	29	34	3.29	- 2.66	1.08	0	12	12	12	7	w.	Mrs. W. E. Buckingham.	
Spokane.	Spokane.	1,943	30	47.9	+ 0.6	84	8	19	29	36	0.39	- 1.12	0.23	0	3	10	13	8	sw.	U. S. Weather Bureau.	
State University.	King.	170	2	51.5*	.....	35*	8	18	27†	40	1.04	.....	0.48	0	7	14	3	14	s.	State University.	
Stokes Ranch.	Okanogan.	2,670	2	.....	.....	.....	.....	.....	.....	.....	0.20	.....	0.12	0	3	25	5	1	nw.	Chas. W. Gunn.	
Sumner.	Pierce.	77	3	49.6*	.....	67*	20	26	21†	37*	1.03	.....	0.25	0	11	16	3	12	n.	H. E. Thompson.	
Sunnyside.	Yakima.	740	16	49.8	- 1.0	80	9	20	27†	41	0.41	- 0.12	0.30	0	3	14	15	2	sw.	U. S. Reclamation Service.	
Tacoma.	Pierce.	213	25	51.2	+ 0.6	73	7	33	27	28	0.96	- 2.44	0.43	0	9	5	18	8	n.	U. S. Weather Bureau.	
Tatoosh Island.	Clallam.	86	26	51.7	+ 1.8	62	20	44	29	34	2.78	- 5.22	0.85	0	12	11	3	17	ne.	Do.	
Tieton.	Yakima.	2,000	2	44.8	.....	70	16	20	28	35	0.45	.....	0.28	0	5	18	8	5	w.	Clarence Clements.	
Tomaskeet.	Okanogan.	945	4	50.2	.....	83	8	22	28†	41	0.10	.....	0.10	0	1	21	3	7	sw.	E. H. Twilight.	
Touchet.	Walla Walla.	556	4	49.2	.....	89	8	14	27	53	0.26	.....	0.12	0	4	18	6	7	sw.	D. W. Dorrance.	
Touchet Ridge.	Columbia.	2,500	2	.....	.....	.....	.....	.....	.....	.....	2.55	.....	1.25	0	4	19	4	8	sw.	J. C. Wheeler.	
Trinidad.	Douglas.	900	7	54.0	.....	83	8	27	28	32	0.14	.....	0.10	0	2	26	4	1	nw.	A. A. Quarnberg.	
Vancouver.	Clarke.	100	36	53.6	+ 0.4	79	7	27	27†	38	1.07	- 1.60	0.59	0	7	13	7	11	n.	Gertrude McClintock.	
Vashon Island.	King.	40	22	50.4	- 0.3	66	7	37	27†	42	1.13	- 1.72	0.35	0	10	14	1	16	n.	F. C. Koppen.	
Wahluke.	Grant.	410	7	52.8	.....	81	8	23	28	37	0.34	.....	0.20	0	3	21	6	4	s.	Geo. A. Wallace.	
Wallace.	Okanogan.	4,000	4	50.2	.....	83	8	22	28†	41	0.29	.....	0.25	0	2	18	9	4	s.	U. S. Weather Bureau.	
Walla Walla.	Walla Walla.	1,000	27	53.2	- 0.5	86	8	32	28	31	0.72	- 0.75	0.51	0	8	17	7	7	s.	F. M. Grout.	
Washougal.	Skamania.	650	11	52.7	- 1.6	70	7	36	5	24	1.61	- 1.71	1.35	0	9	19	4	13	w.	O. R. Hopewell.	
Waterville.	Douglas.	2,624	21	46.0*	+ 0.1	78	8	17	28†	45	0.37	- 0.34	0.20	0	2	24*	3*	3*	sw.		
Wenatchee, near.	Chelan.	1,169	12	.....	.....	.....	.....	.....	.....	.....	0.29	.....	0.24	0	4	15	10	6	n.		
White Salmon.	Klickitat.	325	1	51.8	.....	73</td															

TABLE 1.—*Climatological data for July, 1911. District No. 12—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.							Precipitation, in inches.							Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days, 0.01 inch or more.	Number of partly cloudy days.	Number of cloudy days.			
<i>Oregon—Continued.</i>																				
Ella.....	Morrow.	830	7	49.3	.....	78	16	19	27	38	0.51	-0.23	0.20	0	5	21	5	sw.	Carl F. Troedson.	
Eugene.....	Lane.	449	21	51.0	-2.7	75	7	30	27	38	1.00	-1.84	0.05	0	6	8	11	12	w.	F. L. Barker.
Fairview.....	Coos.	142	15	48.3	-5.9	80	11	32	9†	42	1.90	-3.11	0.87	0	4	25	1	5	rw.	Wm. Betty.
Falls City.....	Polk.	355	14	50.5	-0.2	75	7	25	29	39	2.10	-3.10	0.87	0	7	17	10	4	n.	Chas. F. Vick.
Forest Grove.....	Washington.	220	22	51.3	-0.5	73	16	25	29	39	1.68	-1.85	0.60	0	7	11	10	10	sw.	Pacific University.
Gardiner.....	Douglas.	72	21	54.7	-0.1	72	15†	40	13	27	3.38	-2.37	1.57	0	9	17	3	11	.....	J. S. Gray.
Glendale.....	do.	1,441	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. J. Simpson.
Glendora.....	Tillamook.	575	20	50.6	-0.1	70	8†	26	27	33	4.74	-4.80	1.50	0	8	19	0	12	nw.	Mrs. Jennie A. Reher.
Gold Beach.....	Curry.	40	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. N. Ford.
Granite.....	Grant.	4,680	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John B. Paddock.
Grants Pass.....	Josephine.	956	23	52.7	-1.2	85	7	28	21†	51	0.61	-1.52	0.32	0	5	19	6	6	sw.	Agent, O.-W. R. & N. Co.
Grass Valley.....	Sherman.	2,381	10	48.0	-2.2	77	8	31	27	37	4.73	-1.45	2.56	0	9	15	8	8	se.	Portland Waterworks.
Headworks.....	Clackamas.	719	9	45.0	-2.1	85	8	24	27†	38	0.88	-0.28	0.37	0	6	16	5	11	nw.	Frank Gilliam.
Heppner.....	Morrow.	1,950	21	49.2	-2.1	85	8	24	27†	38	0.88	-0.28	0.37	0	4	23	6	2	e.	C. W. Kellogg.
Hermon.....	Umatilla.	451	4	50.6	-0.2	92	8	16	28	52	0.39	-0.23	0.23	0	5	25	2	4	w.	Carl T. Hubbard.
Hermosa Rio.....	Crook.	2,300	4	45.1	-3.3	78	8	22	27	41	0.66	-0.39	0.39	0	7	20	4	7	w.	H. L. Hasbrouck.
Hood River.....	Hood River.	300	21	48.4	-3.3	70	9†	24	27†	40	0.05	-2.52	0.05	0	3	13	13	5	e.	L. Connell.
Huntington.....	Baker.	2,165	10	51.8	-0.5	82	6	22	25	53	0.04	-0.42	0.02	0	4	17	10	4	.....	E. Britt.
Jacksonville.....	Jackson.	1,640	23	52.5	-1.0	82	7	32	5†	42	0.46	-1.31	0.19	0	4	18	7	6	s.	F. F. McCully.
Joseph.....	Wallowa.	4,400	22	48.1	+3.9	76	8	27	26	37	1.32	-0.08	0.60	6.0	3	18	6	6	.....	C. T. Canfield.
Kerby.....	Josephine.	1,200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edson C. Watson.
Klamath Agency.....	Klamath.	4,169	3	44.4	.....	70	5	12	25†	58	1.19	.....	0.60	0	2	20	7	4	nw.	W. H. Heileman.
Klamath Falls.....	do.	4,100	23	46.9	-2.9	78	8	16	28	44	1.86	+0.21	0.52	0	6	22	5	4	w.	W. A. Worstell.
La Grande.....	Union.	2,784	24	46.9	-2.9	78	8	16	28	44	1.86	+0.21	0.52	0	6	22	5	4	w.	Bert Rice.
Lakeview.....	Lake.	4,825	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Frissell.	
McKenzie Bridge.....	Lane.	1,400	10	49.6	.....	74	15†	22	27	51	2.82	-2.69	0.54	0	9	14	0	17	w.	M. E. Pettit.
McMinnville.....	Yamhill.	182	24	51.2	-1.5	70	16†	25	30	43	1.26	-2.13	0.43	0	7	17	6	8	n.	U. S. Weather Bureau.
Marshall.....	Coos.	34	16	52.7	-2.1	78	20	34	5	38	2.76	1.40	0.09	0	9	19	8	4	n.	Do.
Medford.....	Jackson.	1,425	5	53.2	.....	82	7	30	11	44	0.43	0.16	0	6	19	8	4	d.	Mrs. Agnes Ritchson.	
Merrill.....	do.	4,070	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Lottman.
Metolius.....	Crook.	3,600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Frank Little.
Mikalo.....	Gilliam.	1,400	5	52.9	.....	84	10	24	26	50	1.20	-0.66	0	5	23	4	4	w.	G. Mucke.	
Miramonte Farm.....	Clackamas.	195	23	51.4	-1.2	73	7	28	29	34	1.28	-1.87	0.45	0	6	13	6	12	n.	L. A. Peek.
Monroe.....	Benton.	350	14	50.9	-2.5	72	7	30	29	32	1.64	-1.64	0.94	0	6	12	10	9	n.	Dr. Urban Fisher.
Mount Angel.....	Marion.	485	24	53.4	+0.2	70	7†	34	29	27	1.38	-2.29	0.47	0	7	16	4	11	n.	S. G. Babson.
Mount Hood.....	Hood River.	1,650	1	50.0	.....	75	16	26	27	35	0.98	.....	0.61	0	5	5	7	7	nw.	Alex. Lundberg.
Musick.....	Douglas.	5,000	2	45.6	.....	70	7	30	4†	27	4.98	.....	1.00	3.5	10	21	1	9	sw.	Wm. Matthews.
Newport.....	Lincoln.	69	24	55.0	+0.8	75	20†	40	5†	32	1.98	-2.76	0.45	0	11	11	8	12	nw.	E. C. Woodward.
Paisley.....	Lake.	4,500	8	47.0	.....	74	7	26	27	31	0.45	0.19	0	3	20	6	5	5	nw.	Orrin C. Mills.
Paulina.....	Crook.	4,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. F. Averill.
Pendleton.....	Umatilla.	1,070	22	50.8	-0.7	93	8	12	28	57	0.49	-0.70	0.22	0	5	17	11	3	sw.	John P. McManus.
Pilot Rock.....	do.	1,817	30	50.8	.....	91	8	22	19	40	0.91	0.44	0	4	16	1	14	nw.	John P. McManus.	
Pompeii.....	Clackamas.	3,879	16	44.6	-1.8	71	7	28	5	32	5.55	-0.43	1.74	0	6	19	5	7	w.	U. S. Weather Bureau.
Port Orford.....	Multnomah.	57	41	52.4	+0.9	78	7	34	29	34	0.99	-2.70	0.52	0	5	6	11	14	nw.	J. D. Loucks.
Prairie City.....	Curry.	80	6	54.2	.....	75	17†	38	27	39	3.82	.....	2.15	0	7	19	5	7	n.	A. M. F. Kirchhainer.
Prineville.....	Grant.	3,425	15	46.1	-3.1	73	8	20	28	45	1.62	.....	0.51	0	6	19	3	9	w.	George Summers.
Prospect.....	Crook.	2,864	15	46.8	-3.1	73	11	20	27	53	1.48	+0.84	0.80	0	3	23	2	6	w.	E. F. Graham.
Ramsey.....	Jackson.	2,800	5	49.8	.....	84	7	25	11†	52	1.58	0.40	0	8	15	16	0	se.	Mrs. Eva B. Collins.	
Range.....	Wasco.	1,350	10	45.4	.....	70	16	24	27†	35	0.60	0.44	0	3	23	0	8	e.	Mrs. Emma Arbuckle.	
Redmond.....	Grant.	3,500	3	44.2	.....	79	7	18	18†	45	1.55	0.50	0	5	16	5	10	.....	E. E. Foote.	
Richland.....	Crook.	452	45	52.2	.....	76	8	17	27	43	0.73	0.26	0	2	22	2	3	w.	L. G. Morgan.	
Riverside.....	Malheur.	3,000	12	46.9*	-0.3	85†	15†	9*	28	51	1.06	-0.19	0.25	0	2	18*	8*	4*	w.	Mrs. Leah Fairman.
Roseburg.....	Douglas.	510	33	51.8	-1.0	78	7	27	32	34	1.21	-1.40	0.48	0	6	17	6	9	n.	U. S. Weather Bureau.
Salem.....	Marion.	120	21	52.4	-1.2	69	7†	32	29	31	0.81	-2.27	0.30	0	7	11	3	17	n.	M. P. Baldwin.
Silver Lake.....	Lake.	4,700	14	44.5	-0.7	74	7	13	27	49	0.72	-0.23	0.43	0	2	17	3	3	w.	L. W. Charles.
Siskiyou.....	Jackson.	4,115	3	49.4	.....	74	7	30	23	31	1.07	0.27	0	8	13	10	8	n.	U. S. Weather Bureau.	
Sparta.....	Baker.	4,150	20	49.8	+2.3	81	1	25	18	41	0.27	-1.07	0.12	0	3	22	7	2	w.	J. A. Wright.
Stafford.....	Clackamas.	400	15	52.4	-1.4	76	7	32	28†	34	1.26	-2.45	0.47	0	9	17	6	9	sw.	John P. Gage.
The Dalles.....	Wasco.	112	37	51.1	-1.3	72	9	25	28	34	0.33	-0.91	0.30	0	2	14	14	3	w.	S. L. Brooks.
Toledo.....	Lincoln.	75	21	53.4	-1.1	74	15	20	28	38	2.00	-3.30	0.60	0	7	21	9	1	n.	C. B. Crosno.
Umatilla.....	Umatilla.	340	23	51.7	-2.6	86	8	22	28	41	0.22	-0.49	0.14	0	3	16	2	13	e.	Mrs. Helen T. Duncan.
Union.....	Union.	2,787	46.2*	.....	78	8	16	28	44*	0.09	0	0	0	0	18	4	4	4	s.	Geo. Kieben.
Vale.....	Malheur.	2,242	19	47.7	-0.7	86	8	15	29	50	1.02	+0.42	0.40	0	6	22	7	2	ne.	H. P. Osborne.
Van.....	do.	3,506	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Howe.	
Wallace Orchard.....	Harney.	170	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. A. Park.	
Wallowa.....	Wallowa.	2,935	8	45.1	.....	80	7†	14	28†	52	2.05	0.65	0	10	16	3	12	nw.	L. J. Coverstone	

TABLE 2.—*Daily precipitation for October, 1911. District No. 12, Columbia Valley.*

TABLE 2.—*Daily precipitation for July, 1911. District No. 12—Continued.*

TABLE 2.—*Daily precipitation for July, 1911. District No. 12—Continued.*

TABLE 2.—*Daily precipitation for July, 1911. District No. 12—Continued.*

TABLE 2.—*Daily precipitation for July, 1911. District No. 12—Continued.*

Stations.	Watershed.	Day of month.																														Total			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
<i>Oregon—Continued.</i>																																			
Ray Creek.....	Columbia.....	.20	.13	T.	.37									T.			T.																	0.78	
Redmond.....	Deschutes.....																																		1.31
Reston.....	Umpqua.....	.01		.36																														1.06	
Richland.....	Snake.....	.33																																	
Riverdale.....	Deschutes.....																																		
Riverside.....	Malheur.....	.20																																	0.46
Rock Creek.....	Willamette.....	.12	T.	.32																														1.95	
Roseburg.....	Umpqua.....	.16	.06	.26																														1.21	
Rosland.....	Deschutes.....	.46	.03	.11	.21																												1.06		
Salem.....	Willamette.....	.12	.10	.21	.02																												0.81		
Seneca.....	S.E. drainage.....	.40		.07																														0.67	
Silver Lake.....	do.....	.43		T.	.29																													0.72	
Siskiyou.....	Rogue.....	.07	.15		.27																													1.07	
Sisters.....	Deschutes.....	.55		.18																														0.93	
Sparta.....	Snake.....		T.	.10	.05	.12																											0.27		
Stafford.....	Willamette.....	.47	.04	.14																														1.26	
Starkey.....	Grnd. Ronde.....	.25	.44	.08																														1.51	
Summit.....	Willamette.....	.20	T.	.30																														1.79	
Summit Prairie.....	Deschutes.....	.38	.40	.40																														1.18	
Susanville.....	John Day.....	.30	.75																															3.26	
Tamarack.....	do.....	.65	.67		.40																													1.73	
Telocastet.....	Snake.....		.41	.70																														1.95	
The Dalles.....	Columbia.....	.30																																0.33	
Tinroof Cabin.....	Umatilla.....	.25	.52		.15																													1.36	
Toledo.....	Coast.....	.10	.60																															2.00	
Trait.....	Rogue.....	.05	.10	.10	.16																													1.07	
Trask.....	Coast.....	.20	.18	.50	.03																													4.86	
Umatilla.....	Columbia.....	.04		.14																														0.22	
Union.....	Snake.....																																		
Unity.....	Malheur.....																																		
Vale.....	Malheur.....	.02	.10																																1.02
Valley Falls.....	S.E. drainage.....	.21	.24		.27	.04																												T. 0.83	
Van.....	Malheur.....																																		
Wallace Orchard.....	Willamette.....																																		
Wallowa.....	Grnd. Ronde.....	.10	.61	.04																														1.56	
Wallowa.....	do.....	.19	.65	.01	.02																													2.06	
Wamic.....	Deschutes.....	.44		T.																														0.54	
Warmspring.....	do.....	.86	.13	.05	.01																													1.05	
Wasco.....	Columbia.....	.52	.08		.20																													1.05	
Welches.....	do.....	1.30	1.31	.28																														4.08	
Westfall.....	Malheur.....																																		
Weston.....	Walla Walla.....	.05	.85	T.	.15																													1.65	
Williams.....	Rogue.....			.15	.05																													0.68	
Yonna.....	Int. drainage.....	.32		.46																															1.09

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

II Precipitation for the 24 hours ending on the morning when it is measured.

T Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures for October, 1911. District No. 12, Columbia Valley.*

Date.	Montana.				Wyoming.				Idaho.																		
	Kalispell.		Missoula.		Afton.		Boise.		Bonner's Ferry.		Hot Spring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1....	57	40	64	49			64	46			62	51	66	50	62	35			66	41	70	28	57	39	56	35	63
2....	55	44	55	36			50	42			60	44	63	48	61	31			49	39	60	28	52	39	46	34	52
3....	50	40	58	37			62	37			66	34	66	40	56	29			57	38	58	35	61	39	50	33	54
4....	58	33	53	29			63	46			68	45	63	47	56	26			65	36	68	30	67	38	64	28	60
5....	53	33	53	27			62	37			70	36	62	43	61	33			60	36	68	30	62	35	65	34	52
6....	58	32	64	28			71	38			73	37	73	38	61	32			64	38	65	31	69	27	63	28	64
7....	66	35	69	32			80	42			81	39	82	43	66	28			73	36	66	33	73	37	79	29	72
8....	70	25	79	31			82	50			86	52	88	45	67	27			73	44	68	30	77	43	78	35	80
9....	70	27	74	37			75	41			82	47	63	46	69	27			73	37	75	35	73	41	72	36	76
10....	58	42	62	42			49	41			50	40	48	44	61	31			42	33	62	35	60	34	46	31	55
11....	62	48	47	37			51	44			55	44	59	45	52	29			44	36	41	32	48	38	36	31	49
12....	59	41	63	40			66	39			67	35	69	43	48	26			59	39	48	30	60	34	45	32	64
13....	58	35	58	35			69	43			76	44	63	49	57	32			69	32	52	27	69	37	61	30	65
14....	52	41	57	43			57	42			63	35	61	44	56	29			62	38	60	36	59	42	54	36	51
15....	54	31	58	32			59	35			67	38	68	41	56	29			53	28	58	35	56	28	51	25	58
16....	56	40	64	29			65	38			76	40	68	40	54	29			63	31	58	28	61	27	54	27	63
17....	57	30	60	44			62	38			73	37	64	44	60	28			63	39	47	30	61	30	58	28	54
18....	50	23	53	26			55	33			68	32	60	35	55	30			50	30	46	28	53	29	51	27	49
19....	45	24	49	20			54	30			65	26	56	31	55	33			46	20	50	20	49	22	54	15	47
20....	49	24	53	26			56	28			58	26	61	31	57	*31			45	27	54	28	49	23	46	21	49
21....	52	24	55	20			57	29			53	25	60	28	56	26			52	23	48	20	53	20	46	17	52
22....	56	26	59	23			60	32			66	25	62	28	54	28			60	30	54	25	59	25	52	18	55
23....	53	28	46	23			60	35			62	29	60	32	52	17			60	28	44	24	60	34	54	26	51
24....	39	31	44	37			60	37			62	28	58	46	53	26			59	28	50	25	59	25	55	25	46
25....	46	21	50	30			56	40			60	35	63	37	57	27			51	33	54	30	50	29	54	32	48
26....	47	21	49	25			56	35			58	29	63	29	49	26			55	28	50	25	58	35	52	23	48
27....	47	18	47	18			56	32			60	22	52	25	48	20			58	23	45	15	56	24	55	18	50
28....	46	18	50	14			55	29			57	25	53	24	55	21			53	23	46	16	53	19	68	15	48
29....	48	18	51	21			57	30			60	20	54	24	53	20			53	23	50	17	52	20	66	16	48
30....	48	22	55	20			53	33			62	20	54	30	51	22			56	25	45	17	56	22	48	19	49
31....	43	23	47	19			60	39			60	23	55	28	42	17			55	30	52	20	53	32	55	20	50
Mns.	53.6	30.9	56.6	29.9			60.6	37.4			65.6	34.3	62.5	38.0	56.1	27.3			57.6	32.0	55.1	27.2	58.9	31.2	55.7	26.6	54.4
																										32.5	

## Washington.

Date.	Aberdeen.				Blaine.				Colville.				Kosmos.				Lakeside.				North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.	
	Max.		Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.		Min.							
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
1....	61	47	62	35	56	41	52	40	56	45	59	52	59	48	64	32	55	35	58	47	61	48	58	43	58	45	56	47	58	40	61	49	54	48				
2....	62	45	58	36	66	42	52	40	68	39	59	51	64	42	60	33	54	33	61	48	68	48	63	40	61	39	57	45	55	49	60	48						
3....	56	48	58	45	51	26	54	42	58	40	54	49	58	33	65	34	55	41	59	50	60	39	58	41	57	48	55	49	60	45	57	48						
4....	63	42	59	46	67	36	59	42	62	46	58	49	61	44	62	32	54	39	60	51	60	46	60	45	60	45	57	48	55	49	60	48						
5....	65	37	60	35	64	35	65	34	68	38	57	48	62	33	65	31	52	35	61	42	63	35	57	41	64	39	59	46	56	47	56	47						
6....	60	38	62	50	68	31	70	37	69	43	56	52	67	36	68	35	60	44	65	51	71	38	69	34	63	47	56	53	62	52								
7....	70	39	72	42	76	32	83	36	71	44	56	51	70	39	82	41	62	40	74	46	75	61	80	44	73	45	62	52	60	52								
8....	62	38	68	43	82	31	72	39	76	45	59	51	75	39	86	42	61	43	63	49	85	48	84	51	64	48	59	52	64	52								
9....	60	46	59	52	61	32	58	46	70	52	54	51	66	41	59	38	54	44	58	51	65	47																

TABLE 3.—*Maximum and minimum temperatures for October, 1911. District No. 12—Continued.*

Date.	Walla Walla, Wash.	Oregon.																					
		Ashland.		Baker.		Eugene.		Gold Beach.		Hermiston.		Marashfield.		Portland.		Prineville.		Roseburg.		The Dalles.			
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	55	47	63	43	54	42	59	46	.....	71	44	61	42	54	51	66	33	60	44	59	51	72	41
2.....	62	48	69	44	51	34	59	47	.....	70	48	63	44	64	51	69	32	62	47	63	53	70	39
3.....	65	47	66	36	53	32	54	44	.....	65	39	56	42	55	49	67	30	55	43	64	41	70	24
4.....	55	47	56	41	58	39	60	42	.....	70	47	62	36	63	46	54	40	62	41	68	40	70	47
5.....	65	45	61	34	58	37	69	35	.....	67	33	64	34	64	41	66	31	67	39	64	36	74	34
6.....	73	49	64	37	67	31	63	41	.....	73	33	67	37	68	44	68	34	72	40	65	39	72	25
7.....	74	49	69	48	72	38	75	44	.....	72	42	67	44	78	44	67	33	78	44	69	41	77	26
8.....	86	55	80	43	76	51	82	44	.....	92	40	56	43	64	48	67	30	80	49	71	42	86	36
9.....	55	51	58	41	66	38	58	46	.....	68	52	60	46	58	49	66	34	72	50	60	38	43	
10.....	60	47	56	38	46	38	60	45	.....	67	51	65	39	60	49	69	33	62	40	63	45	52	43
11.....	68	50	62	33	57	39	58	41	.....	71	41	65	37	60	46	73	30	61	38	65	42	57	44
12.....	72	43	74	38	57	36	68	39	.....	73	34	64	38	68	41	70	30	68	38	68	38	61	32
13.....	72	52	61	43	58	40	64	45	.....	70	39	62	50	60	50	68	31	60	45	63	45	59	32
14.....	62	47	55	39	52	37	64	45	.....	68	46	65	41	62	51	71	29	64	42	63	44	63	45
15.....	71	48	67	36	60	32	67	40	.....	75	41	72	40	70	51	67	30	67	40	68	40	66	39
16.....	75	54	71	54	63	33	66	43	.....	73	38	64	45	66	53	70	26	64	46	71	42	67	27
17.....	64	46	65	43	58	33	64	32	.....	72	34	59	42	61	48	70	28	64	40	65	41	71	30
18.....	58	36	64	38	50	30	60	39	.....	65	26	69	37	62	39	69	21	57	36	62	37	64	32
19.....	59	34	71	42	52	22	63	34	.....	63	21	70	40	65	43	69	24	61	36	60	29	60	23
20.....	60	36	72	41	52	27	71	33	.....	62	25	78	40	68	45	63	29	65	36	63	38	61	22
21.....	62	37	75	50	58	25	65	31	.....	64	20	57	40	68	45	62	23	68	40	63	29	59	18
22.....	59	39	67	41	59	26	62	36	.....	63	21	62	50	61	40	67	24	58	40	60	38	61	18
23.....	63	44	61	52	55	31	63	49	.....	65	22	62	51	59	51	70	20	65	45	65	44	68	26
24.....	64	50	69	42	54	33	64	42	.....	72	42	66	43	60	52	67	25	62	43	66	52	68	31
25.....	53	42	61	41	54	37	59	44	.....	62	45	59	47	62	49	60	42	60	40	58	50	66	37
26.....	50	33	66	39	52	27	66	34	.....	58	22	73	41	68	43	62	23	68	35	58	29	64	29
27.....	53	38	66	40	53	22	61	30	.....	55	17	73	37	63	38	68	10	66	32	54	26	59	19
28.....	52	32	64	38	55	22	60	32	.....	56	16	59	36	59	43	60	16	67	37	54	25	50	19
29.....	57	32	65	41	56	22	60	31	.....	58	19	54	42	58	34	65	12	61	40	55	27	58	15
30.....	57	37	63	46	51	29	55	37	.....	60	25	59	46	57	46	67	26	54	41	57	41	56	20
31.....	59	42	60	41	56	29	59	41	.....	62	29	63	42	55	46	63	23	60	41	61	44	65	26
Means.....	62.6	43.8	64.7	41.5	56.8	32.6	.....	67.2	33.9	63.7	41.7	62.5	46.0	66.1	27.5	63.0	40.7	62.8	39.4	65.4	30.0	.....	

•, †, •, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

¶ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.